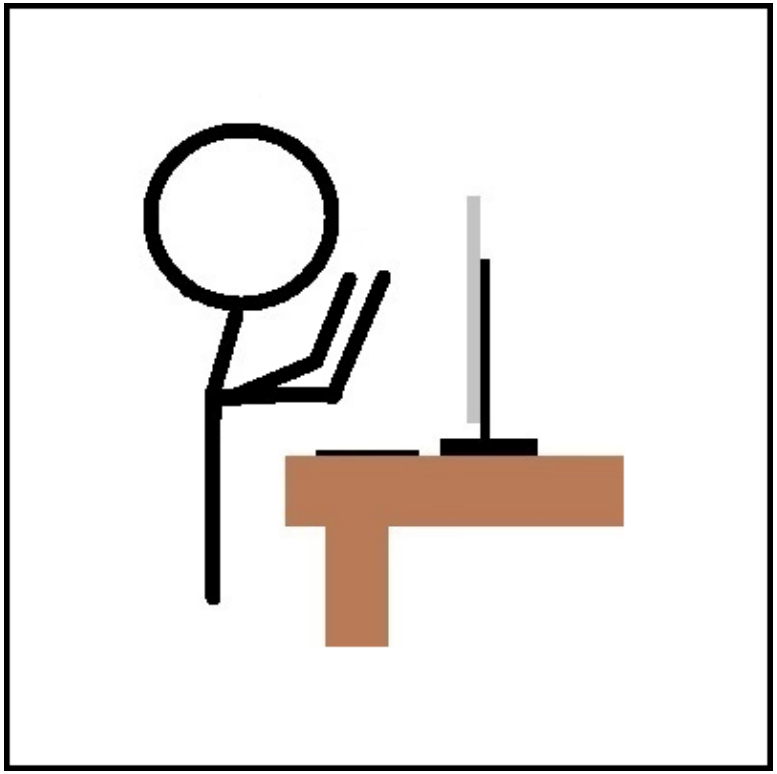
DOE/NV/25946--2121

An Automated Approach To PDV Analysis



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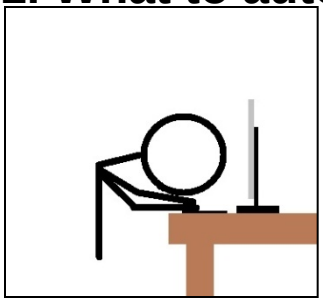
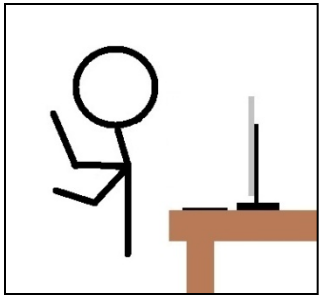
This presentation describes the automated process found in QuickView

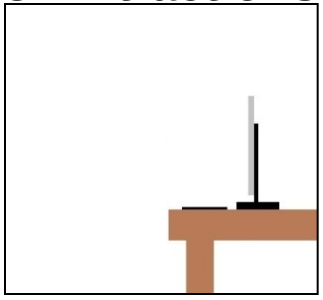
1. What to automate



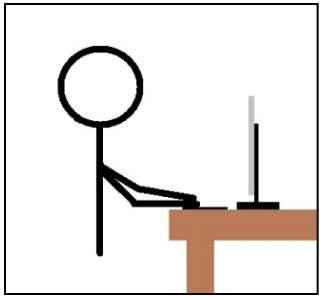
2. How to automate



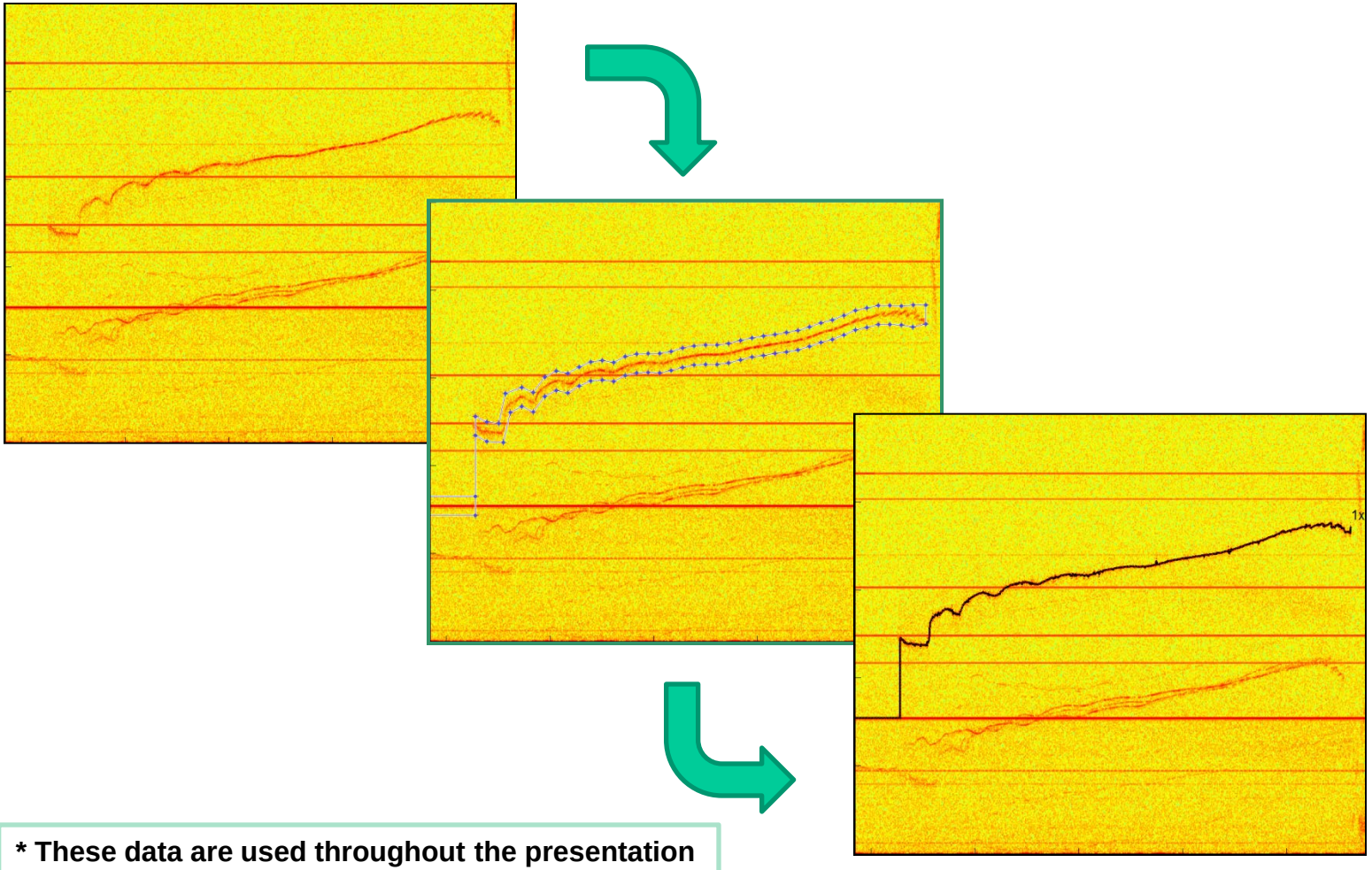
3. Extractions



4. Next…

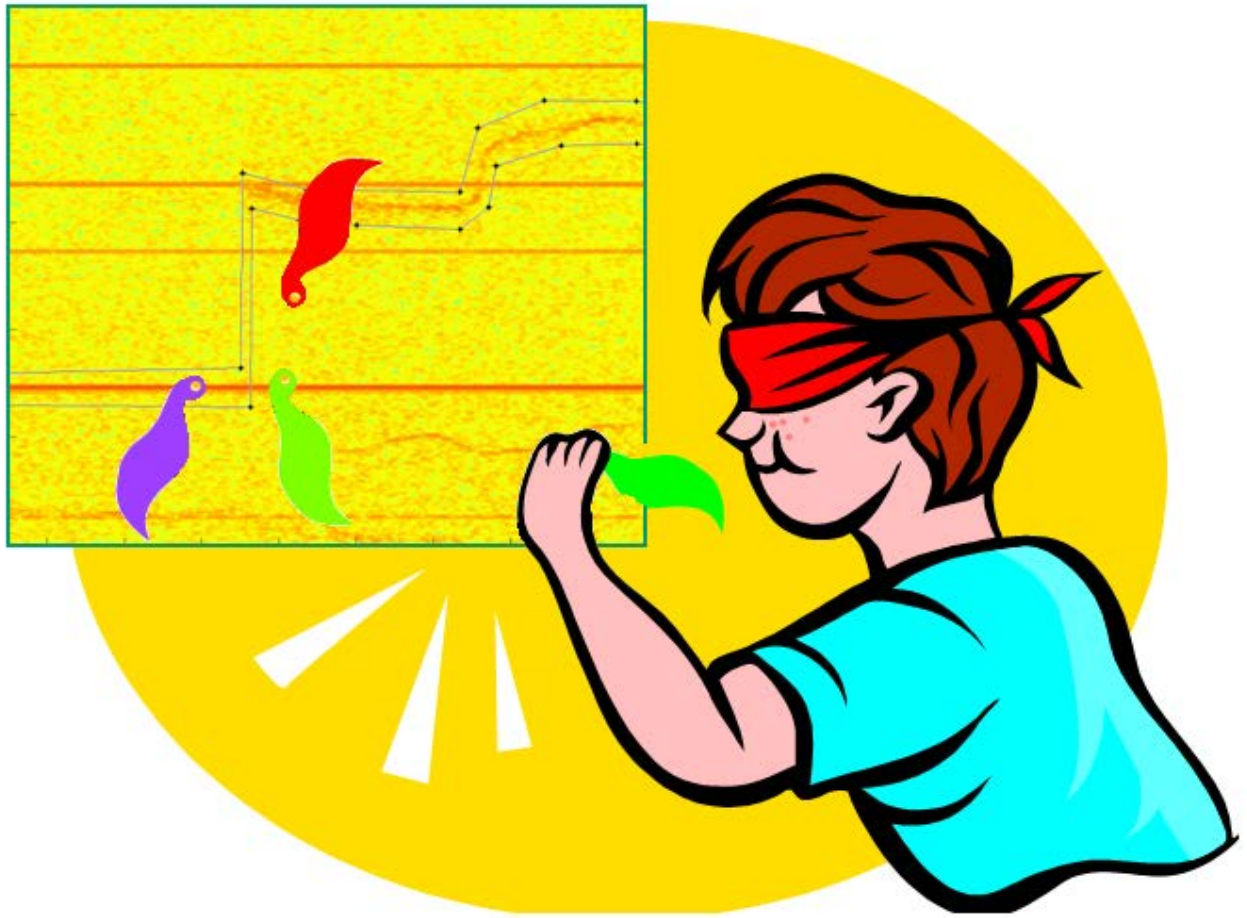


Some ROIs can take forever, as shown on this calibration data*

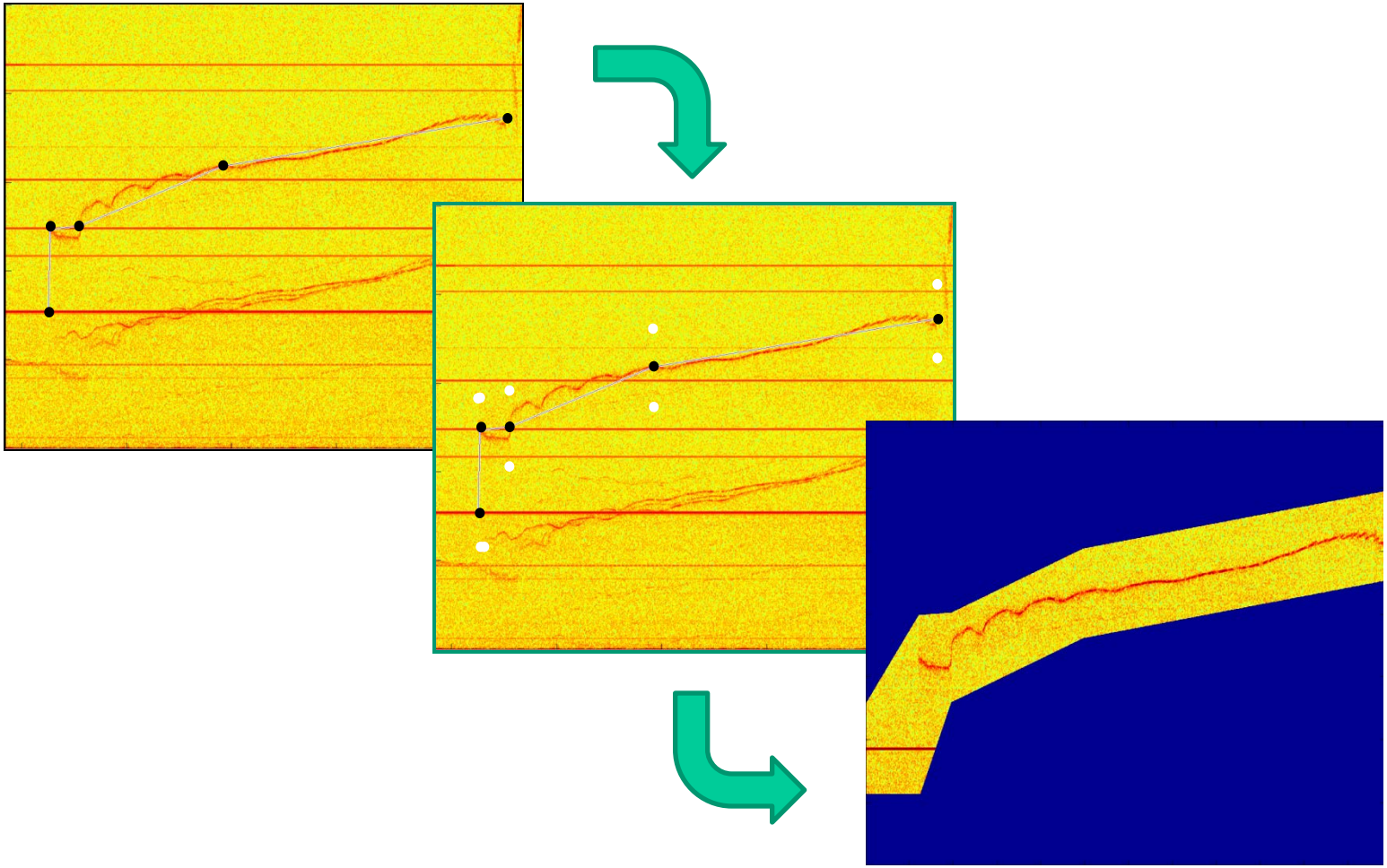


* These data are used throughout the presentation

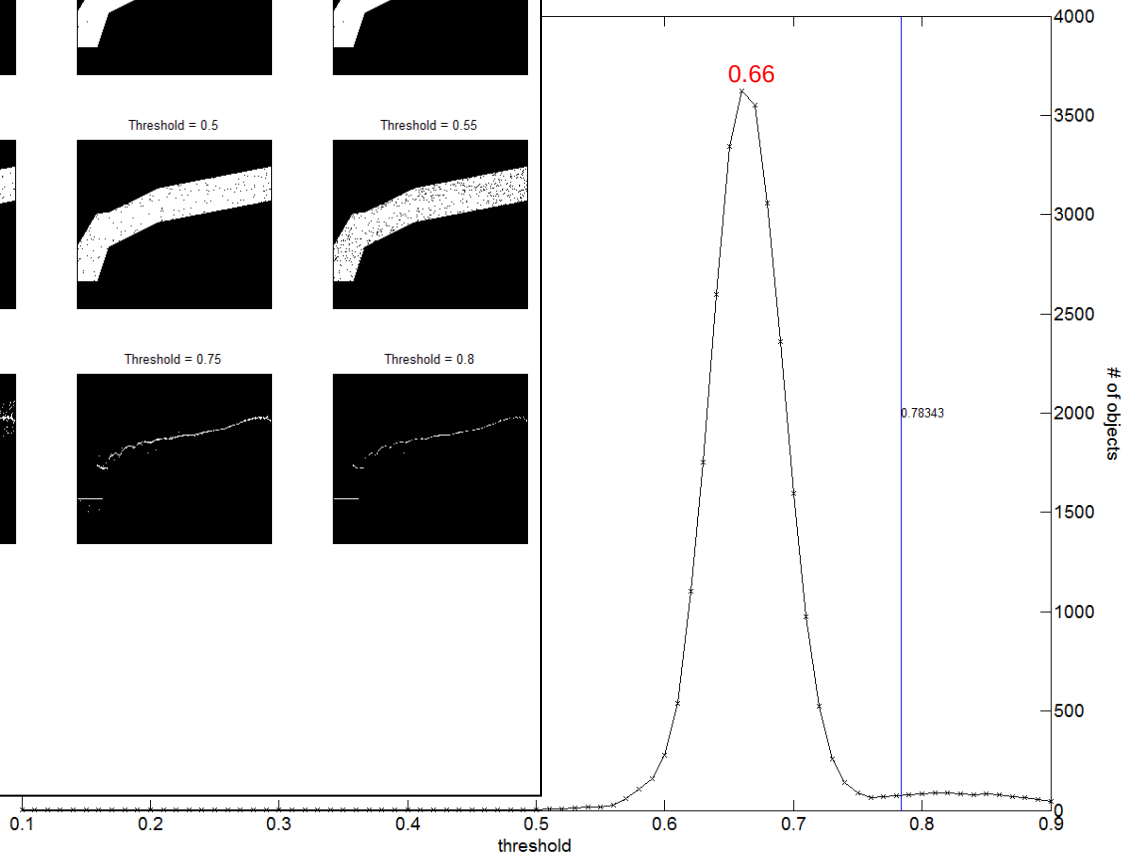
Finding breakout or pin the tail…



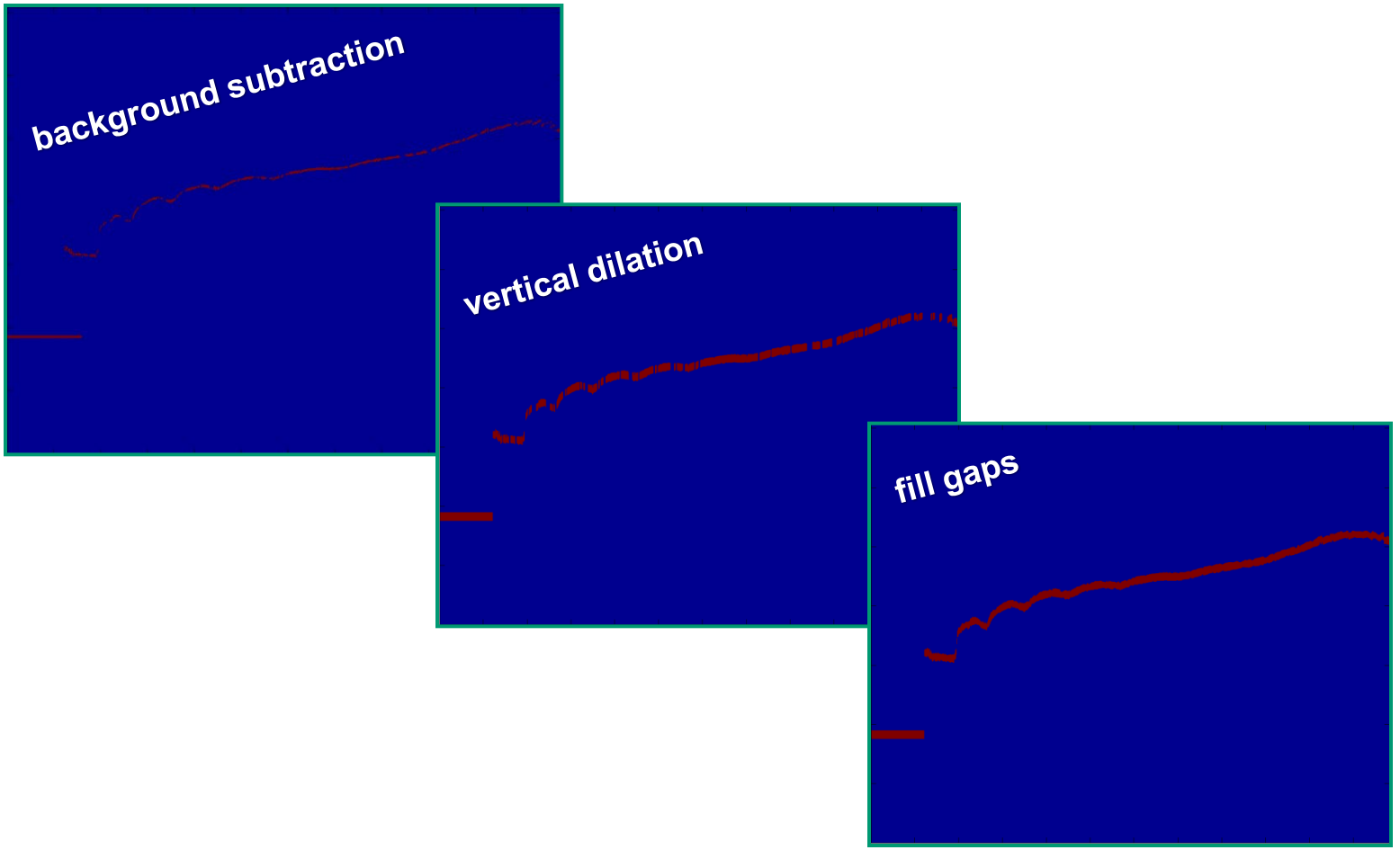
A few nodes are enough to create an ROI



Isolating the data from the noise is automated by using an image segmentation technique



Morphological filtering provides a way to create a clean and unbroken mask to aid extraction



The baseline is easy to find where as breakout may take some exploring to find

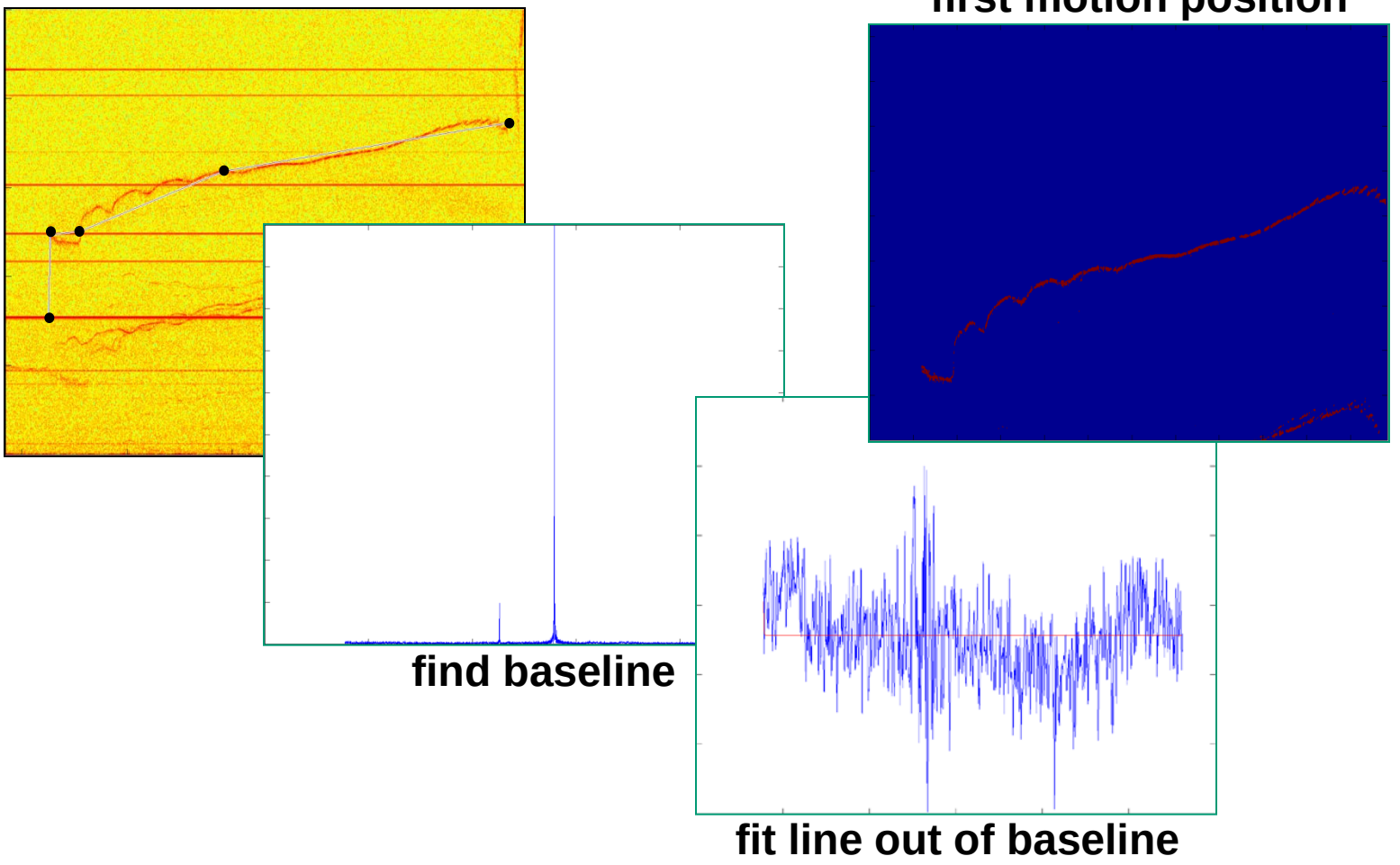
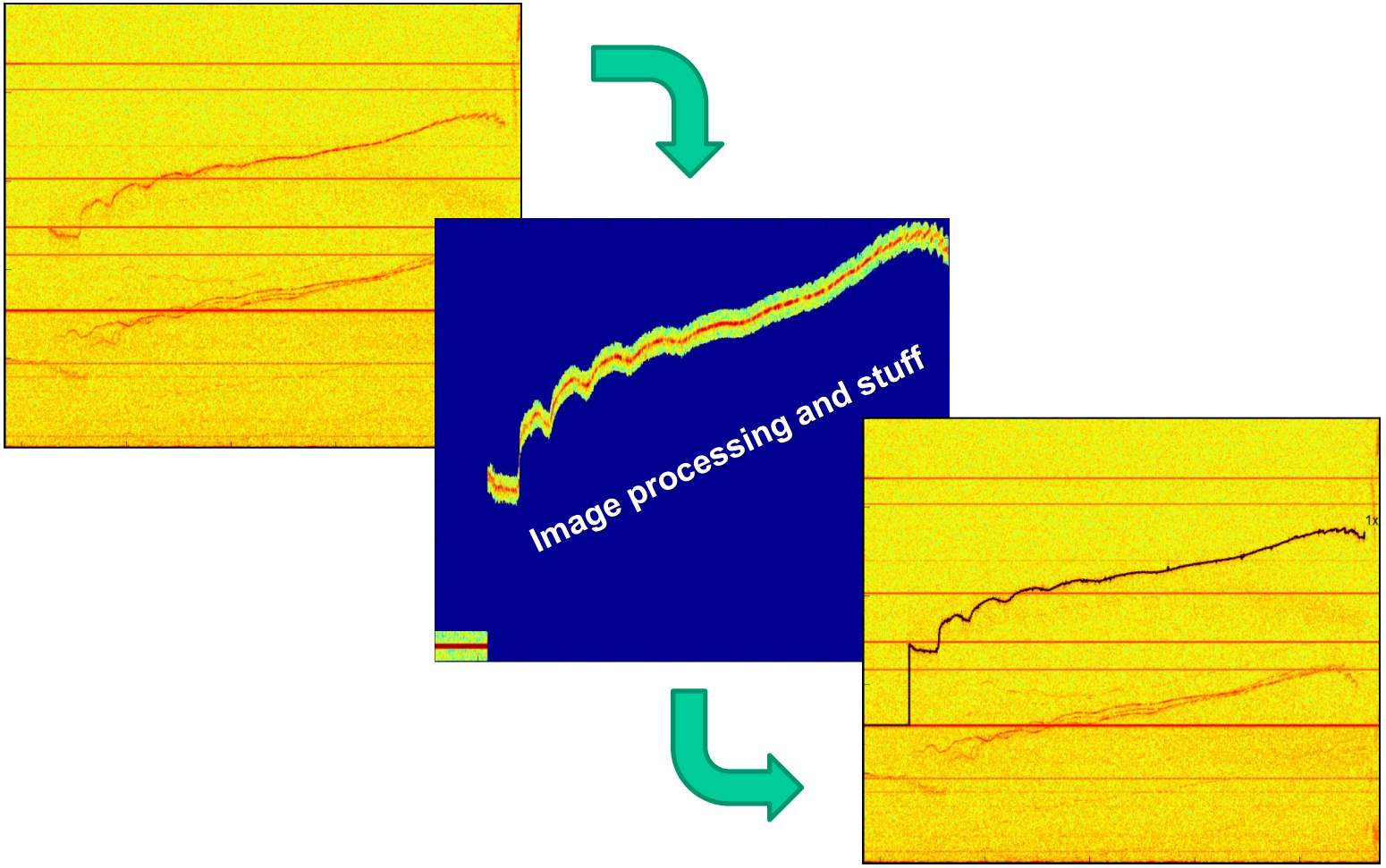
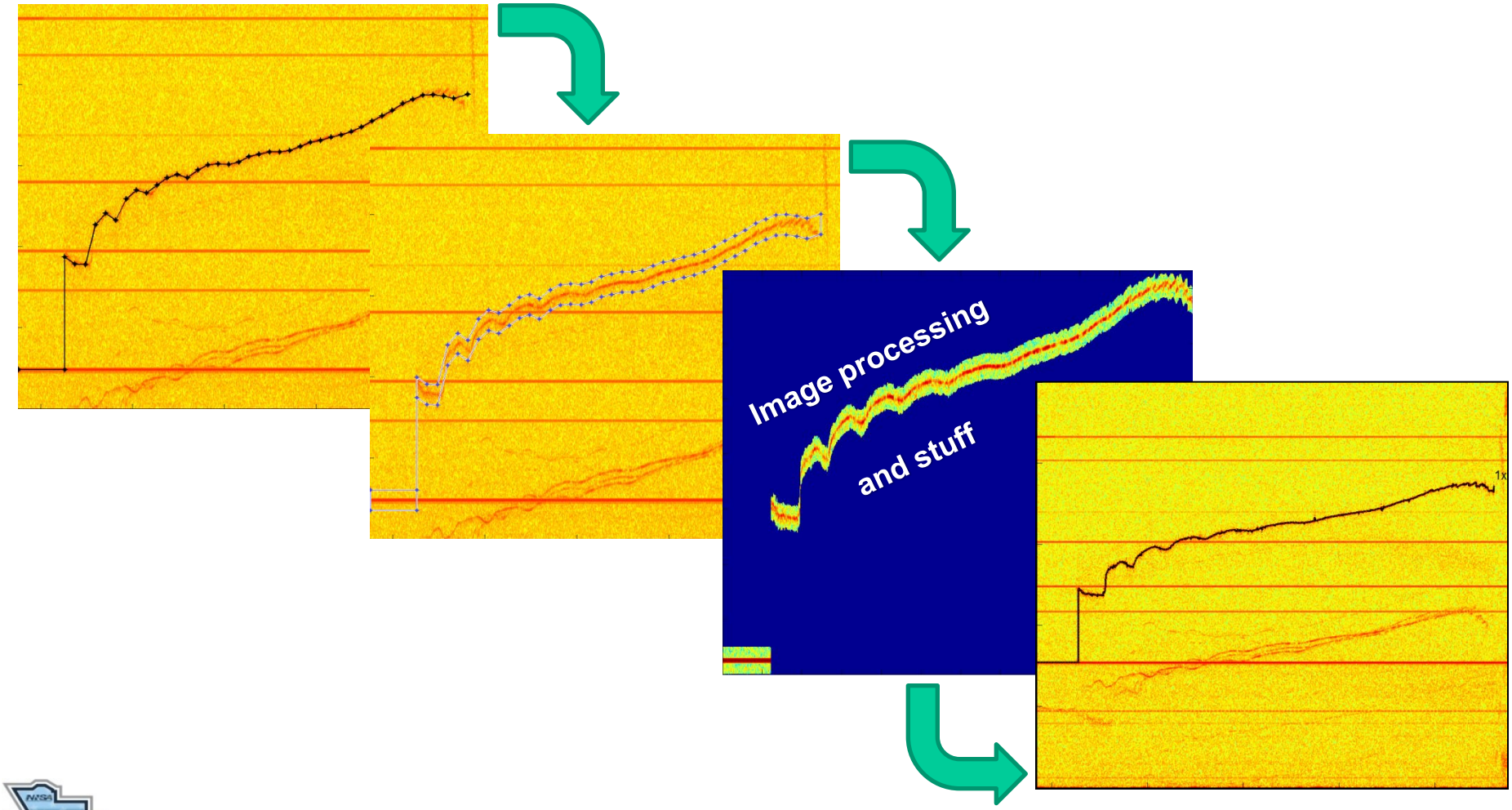


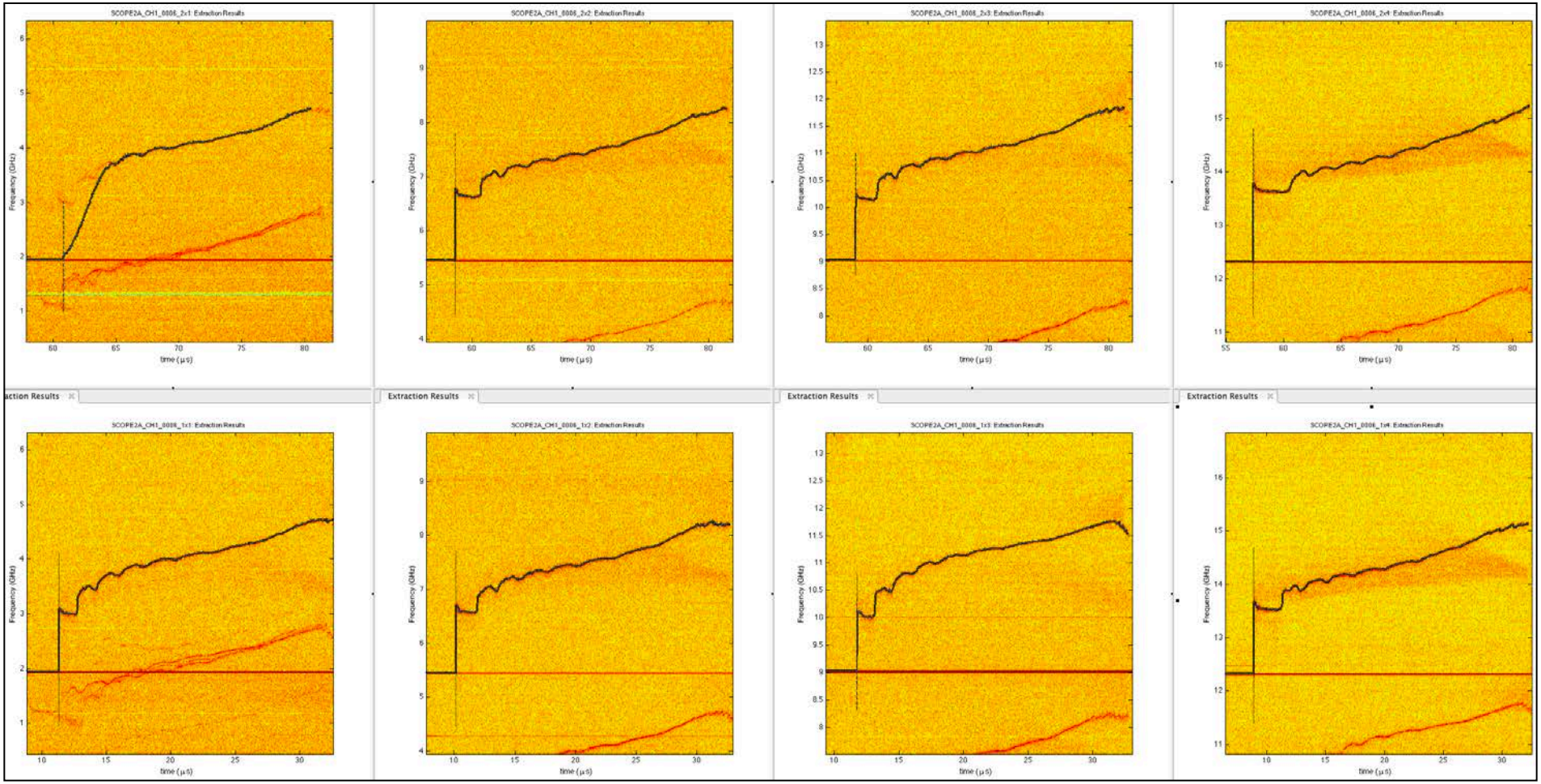
Image processing techniques can save time and ~~frustration~~ when extracting velocities



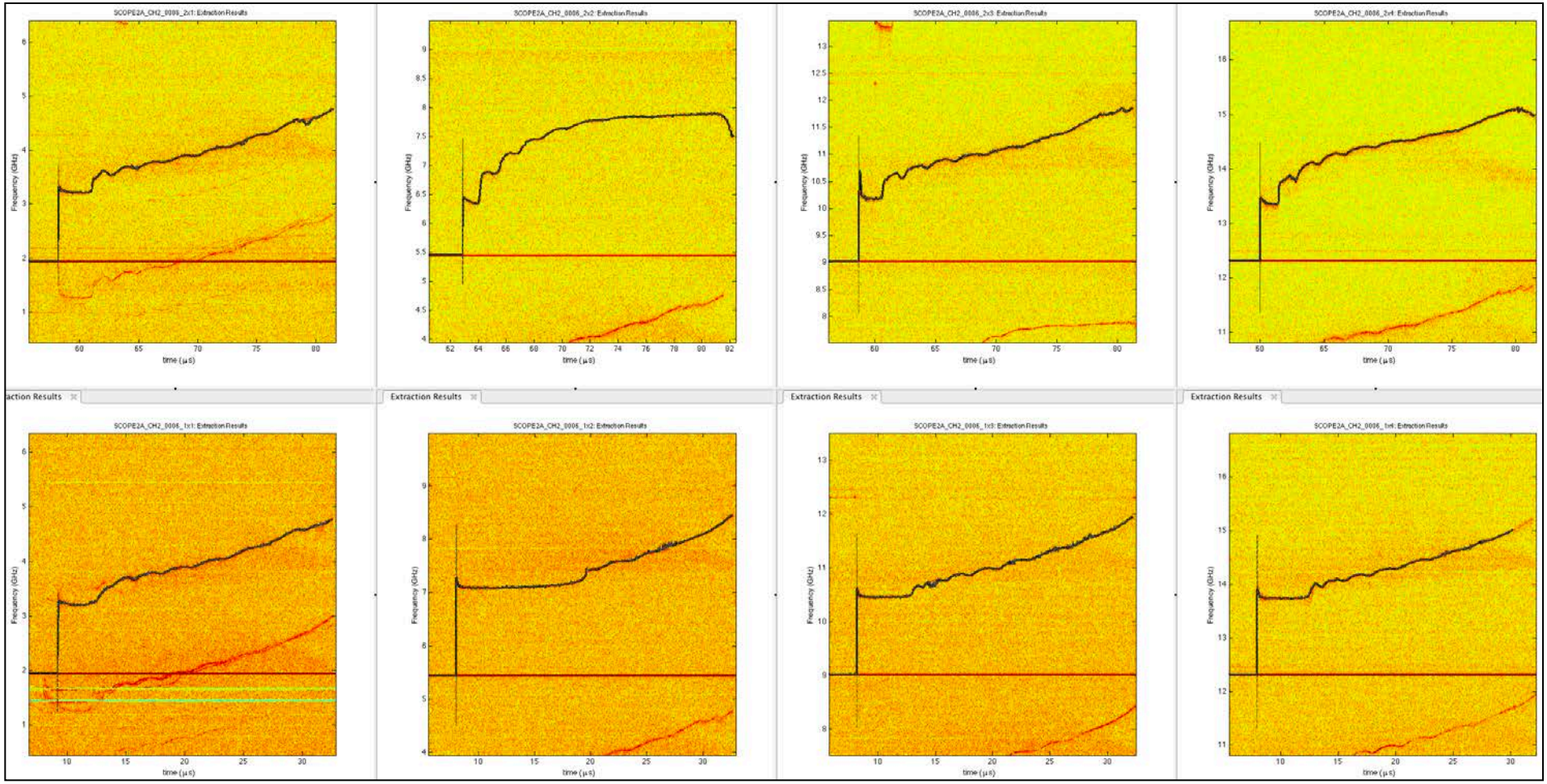
If the automated ROI didn't work you have a second chance



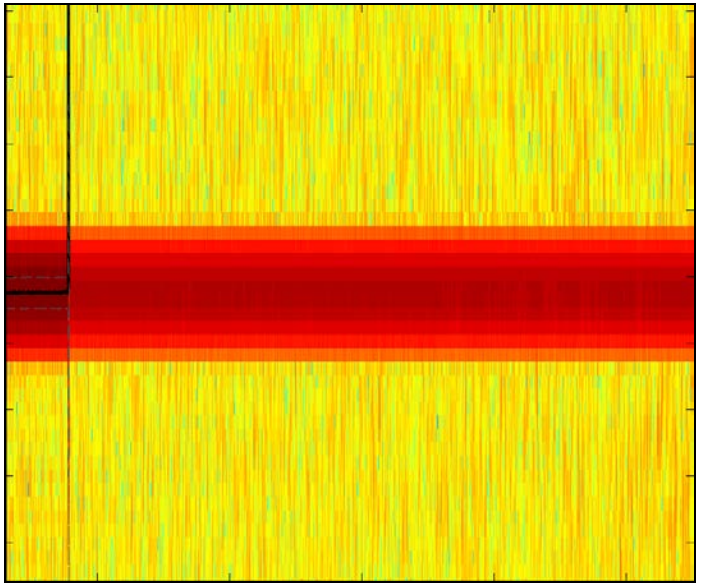
Automated extraction results



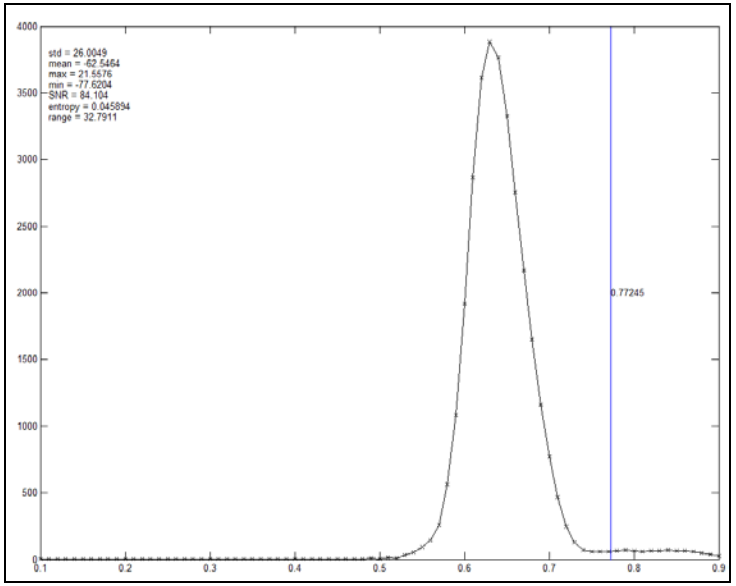
Automated extraction results…continued



Future work will involve finding statistical parameters to determine automated choices

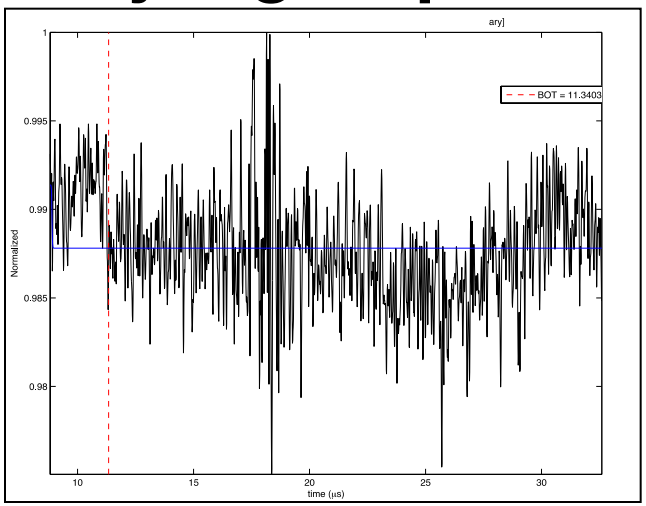


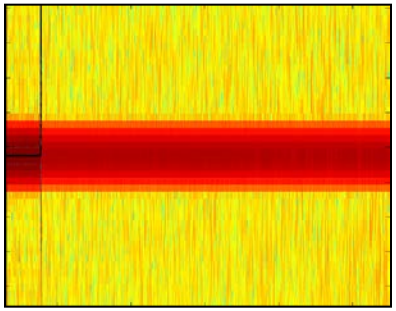
Breakout Time

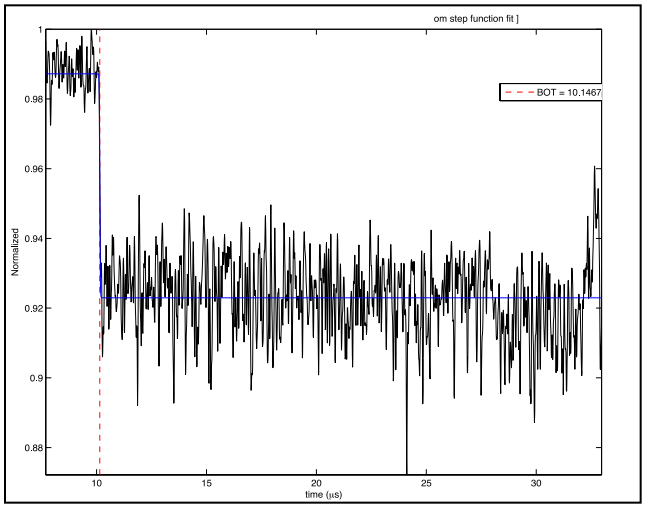


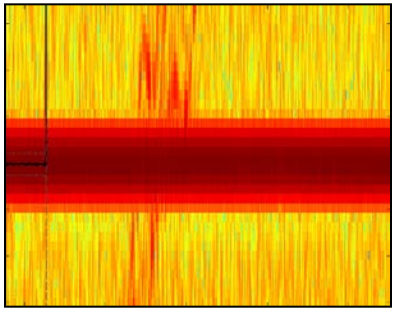
Data Threshold

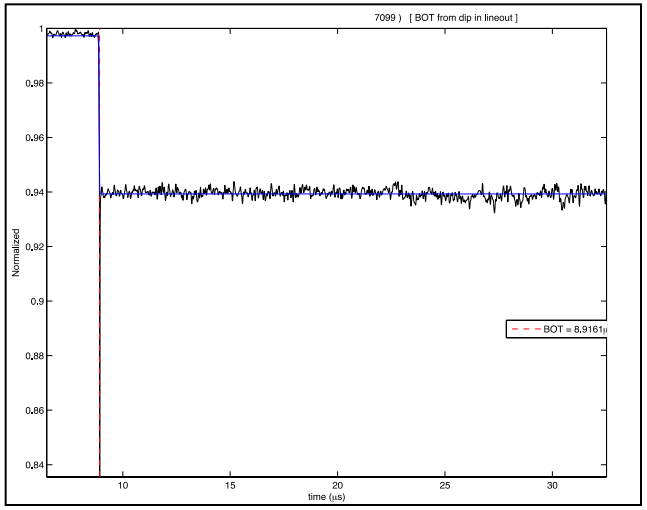
Fit results of the baseline appear to fall in three major groups

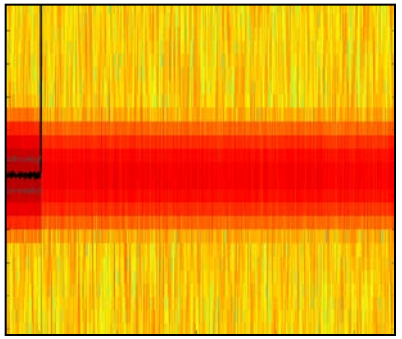




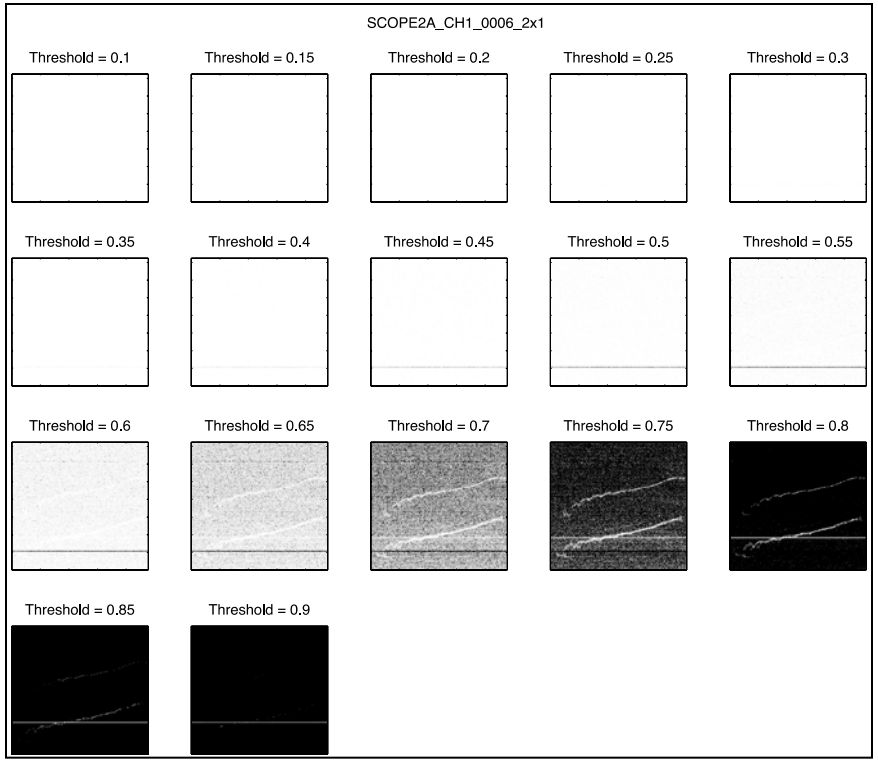




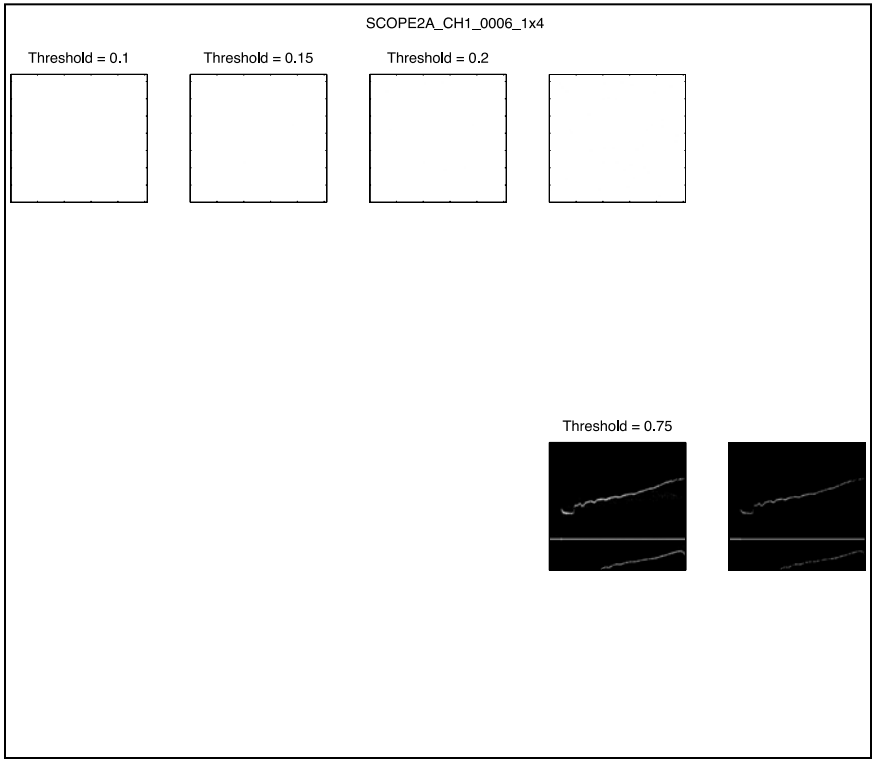




The optimal threshold value for background subtraction is related to noise

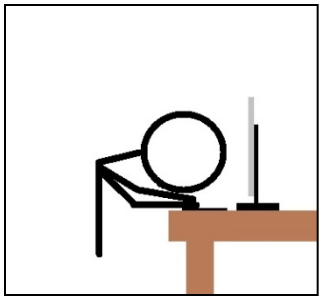


$3\sigma = 0.8489$



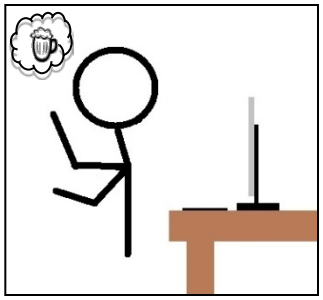
$3\sigma = 0.7689$

In summary, basic image processing techniques can provide an automated approach to PDV data analysis



Without automation

With automation



Questions?